

Attorney Docket NO. I/2000.552 US

In the Claims~~14. (canceled)~~

15. (Previously Amended) An attenuated isolated pestivirus mutant having a growth-restricted phenotype relative to a wild-type pestivirus, said mutant, comprising:

one or more mutations of stem loops 1a and/or 1b of the 5' nontranslated region (NTR) of the pestivirus genome, and

wherein the mutated 5' end of the genome conserves the nucleotide sequence 5'-GUAU and expression of a viral poly protein from said genome is under the control of a homologous internal ribosome entry site (IRES).

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16. (Currently Amended) The isolated pestivirus mutant of claim 15, wherein said growth-restricted phenotype is characterized by a small plaque size phenotype.

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17. (Previously Amended) The isolated pestivirus mutant of claim 15, wherein the mutant comprises more than one mutation in the stem loops 1a and/or 1b.

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18. (Previously Amended) The isolated pestivirus mutant of claim 15, wherein the one or more mutations is a deletion of one or more nucleotides.

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19. (Previously Amended) The isolated pestivirus mutant of claim 15, wherein the one or more mutations is a deletion of stem loop 1a.

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23. (Previously Amended) The isolated pestivirus mutant of claim 15, wherein the pestivirus is bovine viral diarrhea virus (BVDV).

24. (Previously Amended) The isolated pestivirus mutant of claim 23, wherein the pestivirus is BVDV-1 or BVDV-2.

25-34. (Canceled)

35. (Previously Amended) A vaccine, comprising:
an immunogenically active isolated pestivirus mutant of claim 15 and
a pharmaceutically acceptable carrier or diluent.

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20. (Previously Amended) The isolated pestivirus mutant of claim 18, wherein the one or more mutations is a deletion of stem loop 1a and a deletion in stem loop 1b.

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21. (Previously Amended) The isolated pestivirus mutant of claim 18, wherein the mutation is a deletion of stem loops 1a and 1b, and wherein the nucleotide sequence after said deletion at the 5' end of the genome is GUAUUAU or GUAUCCU.

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22. (Previously Amended) The isolated pestivirus mutant of claim 18, wherein the loop portion of stem loop 1b contains five adenosine (A) residues.

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23. (Previously Amended) The isolated pestivirus mutant of claim 18, wherein the pestivirus is bovine viral diarrhea virus (BVDV).

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24. (Previously Amended) The isolated pestivirus mutant of claim 18, wherein the pestivirus is BVDV-1 or BVDV-2.

25-34. (Canceled)

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35. (Previously Amended) A vaccine, comprising:

an immunogenically active isolated pestivirus mutant of claim 18 and
a pharmaceutically acceptable carrier or diluent.

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36. (Previously Added) A vaccine of claim 35, wherein the vaccine provides a therapeutic effect in animals having pestivirus infections.

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37. (Previously Added) The vaccine of claim 36, wherein the vaccine further comprises an adjuvant.

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38. (Previously Added) The vaccine of claim 36, wherein the vaccine is freeze-dried or frozen.

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39. (Previously Added) The vaccine according to claim 35, wherein the pestivirus mutant is BVDV and the vaccine further comprises an immunogen derived from one or more of bovine rotavirus, bovine respiratory syncytial virus, bovine herpesvirus type 1, bovine coronaviruses, parainfluenza type 3 virus, bovine paramyxovirus, foot and mouth disease virus, infectious bovine rhinotracheitis virus and *Pasteurella hemolytica*.

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40. (Previously Amended) A vaccine, comprising:
an immunogenically effective dosage of the isolated pestivirus mutant of claim 15, and
a pharmaceutically acceptable carrier and diluent.

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41. (Previously Added) The vaccine of claim 40, wherein the vaccine is prophylactic.

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42. (Previously Added) The vaccine of claim 40, wherein the vaccine further comprises an adjuvant.

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43. (Previously Added) The vaccine of claim 40, wherein the vaccine is freeze-dried or frozen.

44. (Previously Added) The vaccine of claim 40, wherein the pestivirus mutant is BVDV and the vaccine further comprises an

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immunogen derived from one or more of bovine rotavirus, bovine respiratory syncytial virus, bovine herpesvirus type 1, bovine coronaviruses, parainfluenza type 3 virus, bovine paramyxovirus, foot and mouth disease virus, infectious bovine rhinotracheitis virus and *Pasteurella hemolytica*.

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45. (Currently Amended) A method inducing immunity to a pestivirus infection, comprising:

administering to an animal the vaccine of claim 40. 16

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46. (Currently Amended) A method of inducing immunity to a pestivirus infection, comprising:

administering to an animal the vaccine of claim 42. 18

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47. (Currently Amended) A method of making a vaccine for the protection of an animal against a pestivirus infection, comprising:

mixing together the pestivirus mutant of claim 15 and a pharmaceutically acceptable carrier. 1